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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,126	10/31/2001	Graham Bent	GB920010072US1	4655
25259	7590	08/12/2004	EXAMINER	
IBM CORPORATION 3039 CROWWALLIS RD. DEPT. T81 / B503, PO BOX 12195 REASEARCH TRIANGLE PARK, NC 27709			SAIN, GAUTAM	
			ART UNIT	PAPER NUMBER
			2176	

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/998,126	Applicant(s) BENT ET AL.
	Examiner	Art Unit
	Gautam Sain	2176

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 08 April 2002.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-11 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1-11 is/are rejected.  
7)  Claim(s) \_\_\_\_\_ is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/31/01.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 101***

1) 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claims 1-11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

Claim 1 –11 set forth non-functional descriptive material but fail to set forth physical structures or materials comprising hardware or a combination of hardware and software within the technological arts (ie., a computer) to produce a “useful, concrete and tangible” result. For example, Claim 1, 10 and 11, “method,” “system,” and “computer readable code”, respectively reads on a mental construct/abstract idea or at best a computer program, per se. Claims 1-11 are interpreted as software per se, abstract ideas or mental construct and not tangibly embodied on a computer readable medium or hardware.

### ***Claim Rejections - 35 USC § 103***

2) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**2-1) Claims 1, 2, 4, 5, 6, 7, 9, 10, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaithyanathan et al (hereinafter "V") (US 5857179, issued Jan 5, 1999), in view of Caid et al (US 5794178, issued Aug 11, 1998).**

Regarding claim 1, 10, 11, V teaches pre-processing ... extract ... basic terms (ie., keywords of each document ... determine words of highest impact ... cluster based on common keywords ... summary of keyword)(col 4, lines 48-65).

V teaches formatting ... basic terms (ie., document represented as a vector ... list of words)(col 5, lines 14-67; Fig 3).

V teaches reducing ... terms (ie., reducing 300,000 words to 11,707)(col 5, lines 50-55).

V teaches reducing ... sentences (ie., clustering and retrieval of sentences)(col 10, lines 60-67).

V teaches creating a matrix ... sentences (ie., matrix of documents and terms reduced to form resultant vectors of the document )(col 2, lines 28-36).

V teaches utilizing ... basic terms (ie., ... resultant vectors are then clustered ... grouped into clusters)(col 2, lines 28-36).

V teaches transforming ... n-dimensional coordinate (matrix of reduced dimensionality ... reduced dimension of document vector; multidimensional data onto lower dimensions)(col 7, lines 28-55).

V teaches clustering ... space (ie., clustering the vectors of the matrix of reduced dimensionality)(col 7, line 65 – col 8, line 5).

V associating ... one topic (ie., weight of a word in a cluster, col 9, lines 5-20, applied to sentences taught in col 10, line 64 where clustering of sentences, col 5, line 51 ).

It would have been obvious to one of ordinary skill in the art at the time of the sentence to modify V to include sentence vectors for plurality of sentences for underlying coorelation between documents providing summary of keyword (col 2, lines 55-60) as V teaches applications in databases having clustering and retrieval of sentences which are analogous to documents in a database (col 10, lines 60 – col 11, line 5), providing the benefit of correlating documents grouped into respective clusters and identify terms representing key words of each document in that cluster which form a cluster summary indicative of the documents in that cluster.

**Regarding claim 2**, V teaches “formatting ... at least one document of said at least one term” (ie., shows a matrix with terms on top and associated documents on left axis)(fig 6).

**Regarding claim 4**, V teaches “correlated ... coordinates” (ie., coordinate system specified by three context vector ... context vector ... coordinate axis)(col 31, lines 35-57).

**Regarding claim 5**, V teaches “end points ... clustered” (ie., vectors of the document clustered taught in col 2, lines 20-42 in conjunction with clustering of sentences in col 10, line 64)

It would have been obvious to one of ordinary skill in the art at the time of the sentence to modify V to include clustering of sentence vectors for plurality of

sentences for underlying coorelation between documents providing summary of keyword (col 2, lines 55-60) as V teaches applications in databases having clustering and retrieval of sentences which are analogous to documents in a database (col 10, lines 60 – col 11, line 5), providing the benefit of correlating documents grouped into respective clusters and identify terms representing key words of each document in that cluster which form a cluster summary indicative of the documents in that cluster.

**Regarding claim 6**, V teaches “cluster ... linearly shaped” (ie., vectors linear mapping of dimensional data)(col 7, lines 28-35).

**Regarding claim 7**, V teaches “each of ... one topic” (ie., topics or clusters ... wide range of topics)(col 5, lines 50-55).

**Regarding claim 9**, V teaches “reduced ... one topic” (ie., weight of a word in a cluster, col 9, lines 5-20, applied to sentences taught in col 10, line 64 where clustering of sentences, col 5, l;ine 51 ).

It would have been obvious to one of ordinary skill in the art at the time of the sentence to modify V to include sentence vectors for plurality of sentences for underlying coorelation between documents providing summary of keyword (col 2, lines 55-60) as V teaches applications in databases having clustering and retrieval of sentences which are analogous to documents in a database (col 10, lines 60 – col 11, line 5), providing the benefit of correlating documents grouped into respective clusters and identify terms representing key words of each document in that cluster which form a cluster summary indicative of the documents in that cluster.

**2-2) Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vaithyanathan et al (hereinafter "V") (US 5857179, issued Jan 5, 1999), in view of Noguchi et al (US 5991755, issued Nov 1999).**

Regarding claim 3, V teaches "reading ... term vector" (ie., M dimensional vector ... number of terms of documents)(col 2, lines 28-35).

V teaches "reading ... document vector" (ie., document vectors are results of the query).

V teaches "utilizing ... basic terms" (ie., reduced loading vector matrix ... reduced dimensional space)(col 11, lines 5-18).

V does not expressly teach, but Noguchi teaches "utilizing ... sentences" (ie., theme of document extracted by detecting keyword ... sentence structural ... reduced)(col 6, lines 30-50).

V does not expressly teach, but Noguchi teaches "reading ... vector" (ie., vector model space .. documents ... sentence is ... multi-dimensional character vector)(col 1, lines 50-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify V to include them of document extracted by detecting keyword in sentence structural where sentence vector is multidimensional vector as taught by Noguchi, providing the benefit of sentence structural functional units that are extracted from a plurality of documents where sentence structural function units are extracted from the input (Noguchi, Abstract).

**2-3) Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vaithyanathan et al (hereinafter “V”)(US 5857179, issued Jan 5, 1999), in view of Menlove (US 6012056, issued Jan 2000).**

Regarding claim 8, V does not expressly teach, but Menlove teaches “field weighting ...” (ie., ... field weight)(col 5, line 45).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify V to include field weight as taught by Menlove, providing the benefit of modifying weights used to rank/score objects in order to predict similarity to a target object (Menlove, Abstract).

**2-4) Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vaithyanathan et al (hereinafter “V”)(US 5857179, issued Jan 5, 1999), in view of Caid et al (US 5794178, issued Aug 11, 1998).**

Regarding claim 4, V does not expressly teach, but Caid teaches “correlated ... spherical coordinates” (ie., coordinate system specified by three context vector ... context vector ... coordinate axis)(col 31, lines 35-57).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify V to include coordinate system specified by context vector along coordinate axis as taught by Caid, providing the benefit of an improved system and method for generating and retrieving context vectors and represent high-dimensional abstractions of information content (Caid, col 1, lines 20-26).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam Sain whose telephone number is 703-305-8777. The examiner can normally be reached on M-F 9-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (703)305-9792. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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JOSEPH FEILD  
SUPERVISORY PATENT EXAMINER